GONORRHEA

DISEASE REPORTING

In Washington

DOH receives approximately 1,948 (1998) to 2,992 (2001) reports of gonorrhea per year, for an average rate of 41/100,000 persons.

Purpose of reporting and surveillance

- To assure the adequate treatment of infected individuals, in order to curtail infectiousness and prevent sequelae of infection (e.g., pelvic inflammatory disease and infertility).
- To identify, contact, and treat sexual contacts of reported cases, in order to break the chain of transmission.

Reporting requirements

- Health care providers: notifiable to Local Health Jurisdiction within 3 work days
- Hospitals: notifiable to Local Health Jurisdiction within 3 work days
- Laboratories: notifiable to Local Health Jurisdiction within 2 work days
- Local health jurisdictions: notifiable to DOH Infectious Disease and Reproductive Health within 7 days of case investigation completion or summary information required within 21 days

CASE DEFINITION FOR SURVEILLANCE

Clinical criteria for diagnosis

A sexually transmitted infection commonly manifested by urethritis, cervicitis, or salpingitis. Infection may be asymptomatic.

Laboratory criteria for diagnosis

- Isolation of typical gram-negative, oxidase-positive diplococci (presumptive *Neisseria gonorrhoeae*) from a clinical specimen, or
- Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid, or
- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male.

Case definition

- Probable:
  - demonstration of gram-negative intracellular diplococci in an endocervical smear obtained from a female, or
  - a written morbidity report of gonorrhea submitted by a physician.
- Confirmed: a case that is laboratory confirmed.

A. DESCRIPTION

1. Identification

A sexually transmitted bacterial disease limited to columnar and transitional epithelium, which differs in males and females in course, severity and ease of recognition. In males, gonococcal infection presents as an acute purulent discharge from the anterior urethra with dysuria within 2-7 days after exposure. Urethritis can be documented by: a) the presence of mucopurulent or purulent discharge; and b) Gram stain of urethral discharge that demonstrates 5 or more WBC per oil immersion field. The Gram stain is highly sensitive and specific for documenting urethritis and the presence of gonococcal infection in symptomatic males. A small percentage of gonococcal infections in males is asymptomatic.

In females infection is followed by the development of mucopurulent cervicitis (MPC) which is often asymptomatic, but some women have abnormal vaginal discharge and vaginal bleeding after intercourse. In about 20% there is also uterine invasion, often at the first, second or later menstrual period, with symptoms of endometritis, salpingitis or pelvic peritonitis, and subsequent risk of infertility and ectopic pregnancy. Prepubescent girls may develop gonococcal vulvovaginitis due to direct genital contact with exudate from infected people during sexual abuse.

In females, homosexual males, and sexually abused children, pharyngeal and anorectal infections are common and usually asymptomatic, but may cause pruritus, tenesmus and discharge. Conjunctivitis occurs in newborns and rarely in adults; it may cause blindness if not rapidly and adequately treated. Septicemia may occur in 0.5%-1% of all gonococcal infections, with arthritis, skin lesions and (rarely) endocarditis and meningitis. Arthritis can produce permanent joint damage if appropriate antibiotic treatment is delayed. Death is rare except among those with endocarditis.

Nongonococcal urethritis (NGU) and nongonococcal MPC are caused by other sexually transmitted agents and seriously complicate the clinical diagnosis of gonorrhea; frequently the organisms that cause these diseases coexist with gonococcal infections. In many populations, the incidence of NGU exceeds that of gonorrhea. About 30%-40% of NGU in the US and the UK is caused by *Chlamydia trachomatis* (see Chlamydia).

Diagnosis is made by Gram stain of discharges, by bacteriologic culture on selective media (e.g., modified Thayer-Martin agar) or by tests that detect gonococcal nucleic acid.

Typical Gram-negative intracellular diplococci can be considered diagnostic in male urethral smears; they are nearly diagnostic when seen in smears from the cervix (specificity is 90%-97%). Culture on selective media followed by presumptive identification based on both macroscopic and microscopic examination and biochemical testing are sensitive and specific, as are nucleic acid detection tests. In cases with potential legal implications, specimens should be cultured and isolates confirmed as *N. gonorrhoeae* by two different methods.

2. Infectious Agent

Neisseria gonorrhoeae, the gonococcus.

3. Worldwide Occurrence

Common worldwide, the disease affects both genders, especially sexually active adolescents and younger adults. Prevalence is highest in communities of lower socioeconomic status. In most industrialized countries, the incidence has decreased during the past two decades. In the US, following a decline in the reported rate of gonorrhea from 1975 (468/100,000) to 1997 (122.5/100,000), the gonorrhea rate increased and has remained essentially unchanged through 2000 (131.100,000). In Canada, incidence has fallen from 216.6/100,000 in 1980 to 18.6/100,000 in 1995. However, the prevalence of resistance to penicillin and tetracycline is widespread. Increasing resistance to ciprofloxacin has led the Center for Disease Control and Prevention to alert providers that the use of fluoroquinolone antibiotics to treat gonorrhea is inadvisable in California and Hawaii. Washington State clinicians should remain alert for additional warnings related to treatment. Resistance to fluoroquinolones is common in many parts of the Far East, and resistance to recommended cephalosporins has not been documented.

4. Reservoir

Strictly a human disease.

5. Mode of Transmission

By contact with exudates from mucous membranes of infected people, almost always as a result of sexual activity. In children older than 1 year, it is considered an indicator of sexual abuse.

6. Incubation period

Usually 2-7 days, sometimes longer when symptoms occur.

7. Period of communicability

May extend for months in untreated individuals. Effective therapy ends communicability within hours.

8. Susceptibility and resistance

Susceptibility is general. Humoral and secretory antibodies have been demonstrated, but gonococcal strains are antigenically heterogeneous and reinfection is common. Women using an intrauterine contraceptive device have higher risks of salpingitis during the first 3 months after insertion; some people deficient in complement components are uniquely susceptible to bacteremia. Since only columnar and transitional epithelium can be infected by the gonococcus, the vaginal epithelium of adult women (which is covered by stratified squamous epithelium) is resistant to infection, whereas the prepubertal columnar or transitional vaginal epithelium is susceptible.

B. METHODS OF CONTROL

1. Preventive measures:

a. Same as for syphilis (see SYPHILIS, B1), except for measures that apply specifically to gonorrhea, i.e., the use of prophylactic agents in the eyes of the newborn and special attention (presumptive or epi treatment) to contacts of infected patients (see B2f, below).
b. Prevention is based primarily on safer sexual practices; i.e., mutual monogamy with an noninfected partner, avoiding multiple sexual partners or anonymous and other casual sex, and consistent and correct use of condoms with all partners not known to be free of infection.

2. Control of patient, contacts and the immediate environment:

a. Report to local health authority.
b. Isolation: Contact isolation for all newborn infants and prepubertal children with gonococcal infection until effective parenteral antimicrobial therapy has been administered for 24 hours. Effective antibiotics in adequate dosage promptly render discharges noninfectious. Patients should refrain from sexual intercourse until antimicrobial therapy is completed, and, to avoid reinfection, abstain from sex with previous sexual partners until they have been treated.
c. Concurrent disinfection: Care in disposal of discharges from lesions and contaminated articles.
d. Quarantine: None.
e. Immunization of contacts: Not available.
f. Investigation of contacts and source of infection: Interview patients and notify sexual partners. Trained interviewers obtain the best results with uncooperative patients, but clinicians can motivate most patients to help arrange treatment for their partners. Sexual contacts of cases should be examined, tested and treated if their last sexual contact with the case was within 60 days before onset of symptoms or diagnosis in the case. The most recent sexual partner, even if outside these time limits, should be examined, tested and treated. All infants born to infected mothers should be given prophylactic treatment.

g. Specific treatment for adults: On clinical, laboratory or epidemiologic grounds (contacts of a diagnosed case), adequate treatment must be given as follows:

For uncomplicated gonococcal infections of the cervix, rectum and urethra in adults, the recommended treatment is cefixime 400 mg orally in a single dose, or ceftriaxone 125 mg IM in a single dose, or ciprofloxacin 500 mg orally in a single dose, or ofloxacin 400 mg orally in a single dose. or levofloxacin 250 mg orally in a single dose. Patients who can take neither cephalosporins nor quinolones may be treated with spectinomycin 2 gm IM in a single dose.

Because of the high probability that patients infected with *N. gonorrhoeae* also have genital infection with *Chlamydia trachomatis*, it is recommended that azithromycin 1g PO in a single dose or doxycycline 100 mg PO twice a day for 7 days be added routinely to the treatment for uncomplicated gonorrhea. It must be stressed that providing patients under treatment for gonorrhea with a treatment effective against genital chlamydial infection is recommended routinely because chlamydial infection is common among patients diagnosed with gonorrhea. This will also cure incubating syphilis and may inhibit emergence of antimicrobial resistant gonococci.

Gonococcal infections of the pharynx are more difficult to eradicate than infections of the urethra, cervix or rectum. Few regimens can cure such infection more than 90% of the time. Recommended regimens for this infection include ceftriaxone 125 mg IM in a single dose or ciprofloxacin 500 mg orally in a single dose.

Resistance of the gonococcus to common antimicrobials is due to the widespread presence of plasmids which carry genes for resistance. Thus, strains of gonococcus are resistant to penicillin (PPNG), tetracycline (TRNG), and the fluoroquinolones (QRNG). Resistance to third generation and extended spectrum cephalosporins (e.g., ceftriaxone and cefixime) is rare as is resistance to spectinomycin. Of great importance is resistance to fluoroquinolones (e.g., ciprofloxacin and ofloxacin). Cases of gonorrhea resistant to flouroquinolones are becoming widespread in Asia and have been reported sporadically from many parts of the world, including North America. In the United States, Quinolone-resistant *N. gonorrhoeae* is becoming increasing common in some areas on the West Coast. Quinolones are no longer recommended for the treatment of gonorrhea in Hawaii and is inadvisable in California. Resistance to fluoroquinolones and other antimicrobials is expected to continue to spread, therefore surveillance for resistance is crucial for guiding therapy recommendations. Treatment failure following any of the antigonococcal regimens listed above is rare, and routine culture as a test of cure is unnecessary. If symptoms persist, reinfection is most likely, but specimens should be obtained for culture and antimicrobial susceptibility testing. Retesting of high risk patients after 1-2 months may be advisable to detect late asymptomatic reinfections. Patients with gonococcal infections are at increased risk of HIV infection and should be offered confidential counseling and testing.

3. Epidemic measures

Intensify routine procedures, especially therapy of contacts on epidemiologic grounds.

4. International measures

See SYPHILIS, B4.